Population Ecology and Successional Behavior of Exotic and Native Shrubs in the Devastation Area, Hawaii Volcanoes National Park, Hawaii *

Robert A. Wright
Department of Botany
University of Hawaii at Manoa
3190 Maile Way
Honolulu, Hawaii 96822

The 1959 eruption of Kilauea-Iki buried a nearby forest with a blanket of cinder, forming a landscape appropriately named the "Devastation Area". The principle objective of this project is to investigate the successional and population behavior of the five major shrub species in this area. The shrubs are Dubautia scabra, Rumex giganteus, Vaccinium reticulatum, Buddleja asiatica, and Rubus penetrans. The first three are native species and the last two are aliens.

Preliminary analyses reveal that Rumex and Rubus have population structures best described as invasive. Their high proportions of immature plants may foreshadow an increase in community importance for these species. The alien Buddleja asiatica displays a degenerate population structure with few immature plants. This may presage a lesser community role for Buddleja. Future analysis will examine spatial associations between shrubs and the apparent effects of association on population structure and vice versa.

These results are of both theoretical and practical interest. Their theoretical interest lies in the apparent linkage between population structure and successional change. Practically, they may aid resource managers in assessing the successional position of alien species, their relations with native plants, and the need for control measures.

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* ABSTRACT